



Combo Engineers Manual

Introduction

Included in this manual are sections on TRANSPORTING, INSTALLING, MAINTAINING, and CLEANING the system.

This manual is also designed to give an engineer's view of the *Eclipse* Checkweigher and Sentry Metal Detector Combined system, and as such is of a technical nature. The complete system is detailed, along with normal operation and also fault finding and repair.

The combined System can be operated in two modes.

1. Where the metal detector handles its own rejects prior to the Checkweigher.
2. Where the Checkweigher handles metal rejects on its outfeed conveyor.

It can also be configured as an INTEGRASEARCH, which enables the metal detector set-up parameters to be viewed on the Checkweigher display.

This system like all the other Cintex systems can be configured to confirm vital actions and or utilities are present such as a reject pack has left the line, that the reject bin is not full (obstructed), that the correct air supply is available, that the relevant photocells are not obstructed, etc. Any or all of these can be connected up to stop the line in the event of failure of any of them.

TRANSPORTATION:

1. Checkweigher Motor Cables – These are disconnected and temporarily tied up to prevent damage during transportation. They must be released and connected prior to commissioning. Ensure that the sealing rubber is secured with the cable and connector.
2. When lifting any machine and especially a combined system, always use a forklift and support from under the lower frame bars. Note that the centre of gravity will be between the CS4000 cabinet and the metal detector head since the majority of the weight will be in the metal detector head. **Where fitted always use the fork lifting brackets.**
3. Secure with ties through and over the lower frame, DO NOT TIE DOWN OVER THE TOP OF THE COVER GUARDS OR THE CONVEYORS.
4. DO NOT LIFT OR PULL THE SYSTEM BY THE CONVEYORS.

LIFTING INSTRUCTIONS:

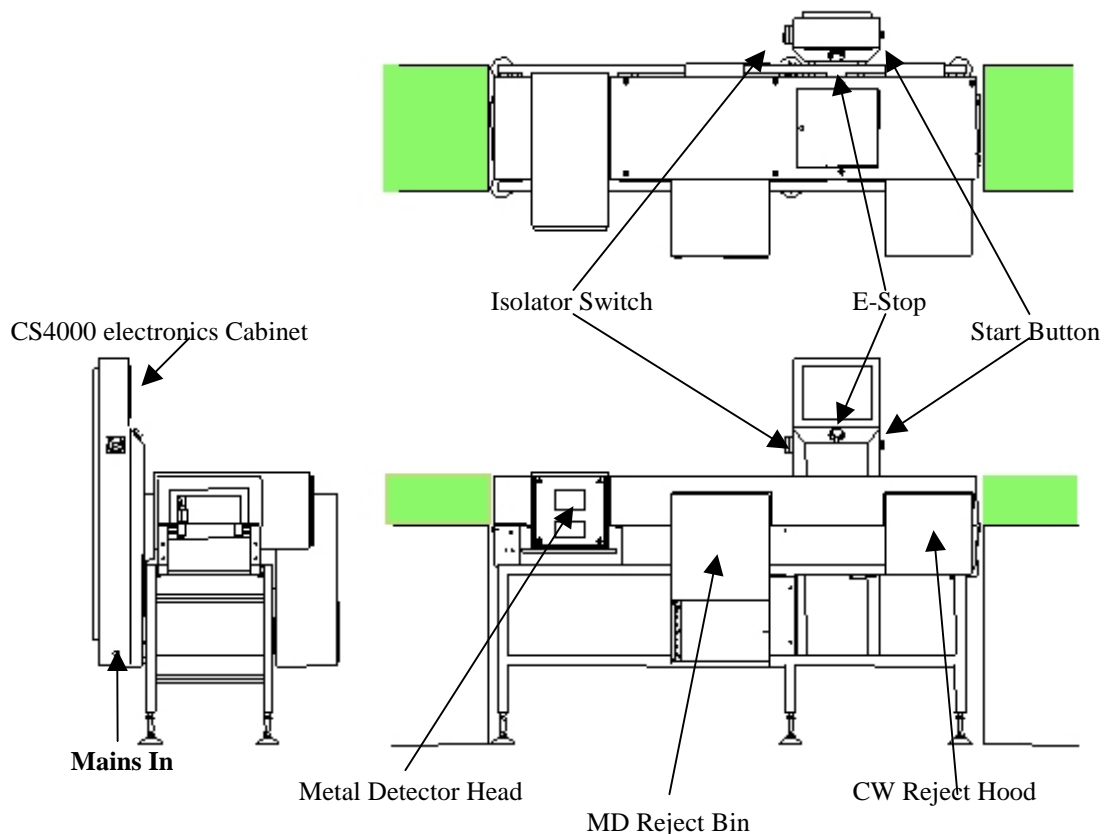
INSTALLATION:

1. Once located into the correct position, the system must be locked down to prevent movement and contact with adjacent line machinery. It should also be level in operation.
2. Always use an RCD feed for the system (16 Amp rating).
3. Ensure that terminal covers are replaced after connection of the mains power cable.
4. Release the Checkweigher motor cables and connect to the motors and secure. Ensure the sealing rubber is located in place prior to securing.
5. Connect a suitable air supply (4 to 6 BAR) to the system. **MAXIMUM MUST NOT EXCEED 10 BAR.**
6. Check that none of the conveyors are obstructed or in contact with adjacent equipment.
7. The customers should fit guarding at the interface of the CINTEX system with their own system. There is a potential hazard at the conveyor junctions plus the reject device on the outfeed conveyor.
8. If the system is used as a stand alone system, then extra guarding around the outfeed end and reject device should be fitted.

NOTE: When the conveyors are stopped the reject device is disabled.

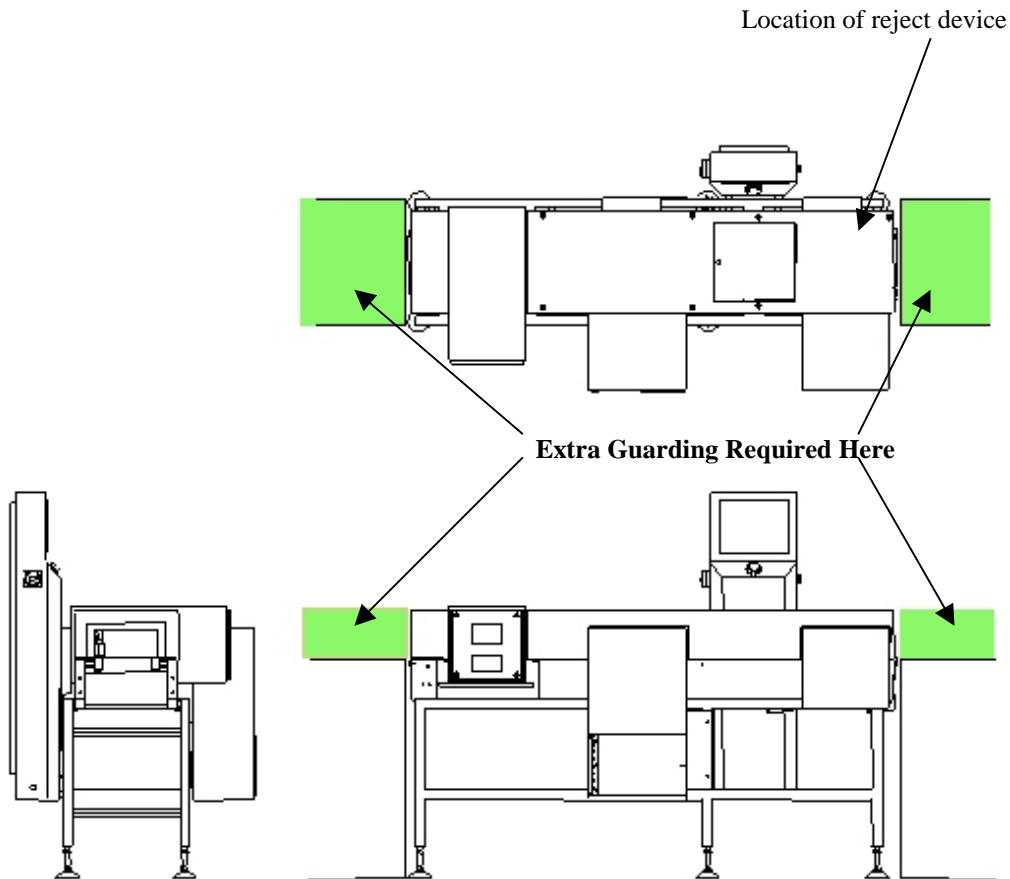
It is advisable to isolate the system before undertaking any maintenance or cleaning work.

Combined System:



Guarding for Combined System Incorporation:

After incorporation in the line, extra guarding will be required in the two regions indicated (shaded), to fully comply with EN294



HAZARD WARNINGS:

Only suitably trained personnel should undertake cleaning and maintenance.

1. The systems are designed for incorporation into a line; (certificate of incorporation) therefore **the customer must take account of the potential pinch hazards** that will exist at the interfaces with the rest of the line. CINTEX has guarded up to the ends of their system.
At the outfeed end, where the reject device is located, It is not possible for CINTEX to fully guard to EN294. **The customer therefore should take steps to protect their side of this and the infeed interface.**
2. There is a risk of injury due to reaching in and trapping arms, hands or fingers in an activated pusher, diverter paddle, or powered dipping or lifting conveyor reject, if the customer does not guard their take off conveyor, at this interface.
3. If the conveyor motors are stalled, the temperature may rise above the normal operating temperature of 70⁰C, and may cause a burn if contact made with bare skin.
4. Burns may occur due to friction between conveyor belts if jammed.
5. Injury may occur if air blast outlets are touched during operation. Air pressure to the system **MUST NOT** exceed 10 BAR. **Normal operating pressure should be between 4 and 6 BAR.**
6. **BEWARE** of items ejected from the reject station during operation, when either emptying a reject bin or working on or around that area. Reject packs can be ejected from the line at high speeds especially by an air blast system. Also beware of constituent parts of packs being blown off a line by an air blast device. Always locate a receptacle under the *REJECT HOOD* (where fitted in place of a bin) prior to operation of the system. If the system is to be used as a stand alone unit then beware of product falling off the end of the outfeed conveyor.
7. Always **STOP the conveyor system** before undertaking cleaning of any part of, or underneath the transport system. There is a DANGER of trapping and injury to fingers in drives and rotating parts.
8. **DO NOT HOSE DOWN** the system unless Cintex has given **EXPRESS** permission in writing.
9. **DO NOT ENTER THE TOP HATCH**, above the weigh conveyor, while the conveyors are running. Injury may result from contact with the activated reject device.
10. Always or isolate the system before undertaking any system maintenance.
11. When cleaning down debris and cleaning fluids will fall through to the floor and will need to be cleaned up to prevent a hazard from slipping or tripping.

NOISE LEVELS:

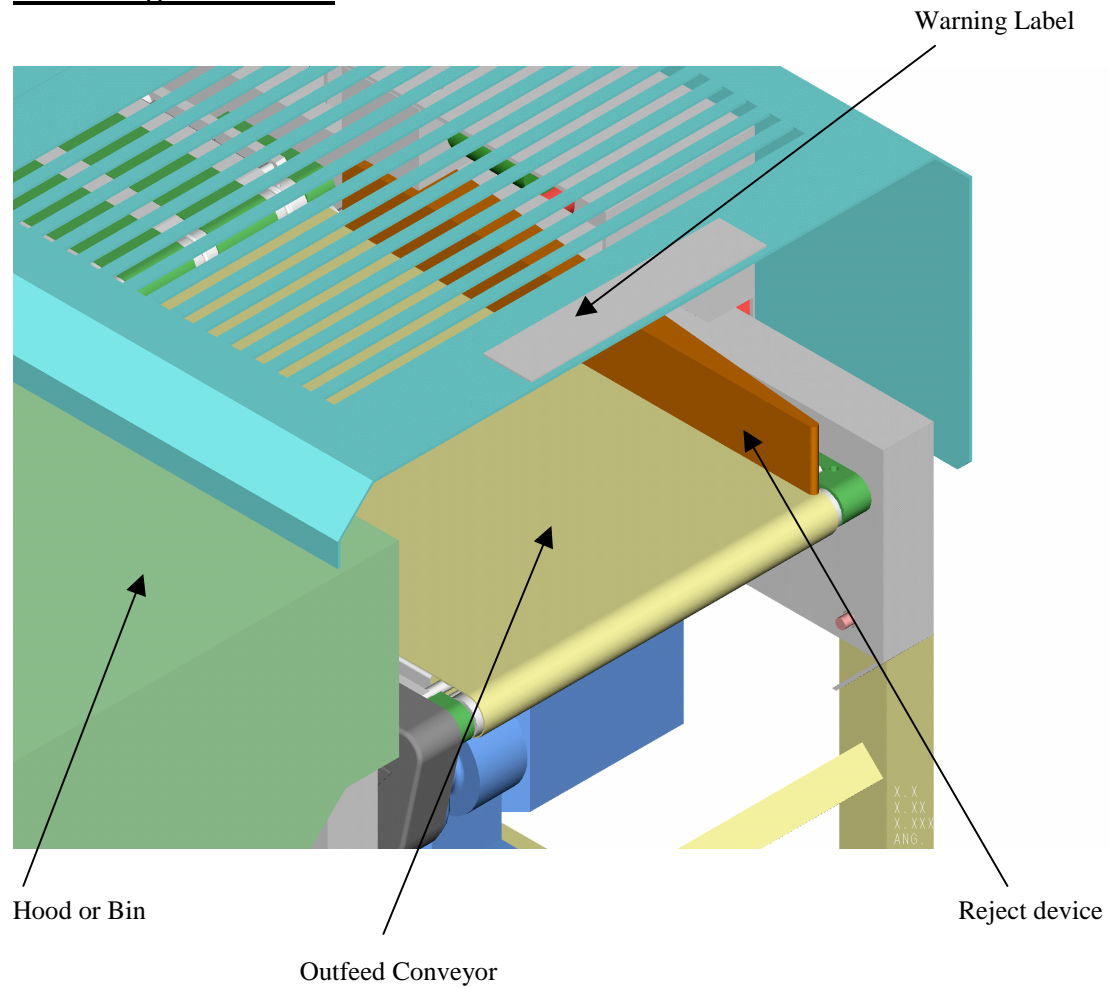
The Eclipse free standing Checkweighers and the Eclipse Checkweigher metal detector combinations systems, produce less than 70 dB(A) of noise measured at the operator station

Pneumatic rejects actuators (other than air-blast) produce peak noise levels of less than 85 dB(C) , measured at the operator station..

Air-blast rejects produce peak noise levels of greater than 85dB(C) but less than 130dB(C), measured at the operator station.

All noise measurements were made using a “01DB SVANTEK SVAN912A” noise meter from the operator station.

Checkweigher Outfeed.



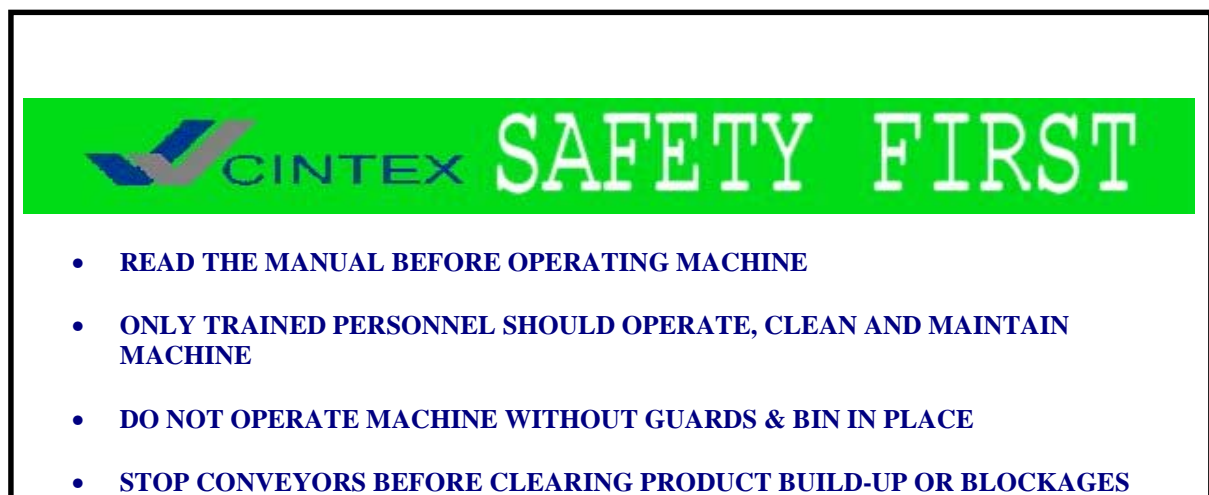
If a Hood is fitted for weight rejects, the system **SHOULD NOT** be operated without a suitable receptacle located under it to catch the ejected product.

NOTE: Once the system has been installed into line, the customer should take steps to guard their side of this interface to prevent access to the reject device and the pinch point between the transport conveyors.


WARNING LABEL



HEALTH & SAFETY LABEL



- ALWAYS ISOLATE MACHINE BEFORE CLEANING OR MAINTENANCE

		Cintex Ltd. Featherstone Road, Wolverton Mill, Milton Keynes, UK, MK12 5TH Tel: +44 (0) 1908 629200	
SYSTEM TYPE		System Weight	kg
Serial No.	Year	OIML Cert. No	
Max Weight	kg	Min Weight	g
Max Speed	m/Sec	Max Throughput	PPM
Supply	V 50/60Hz Phase	Power	750 VA
Air Pressure	4 to 6 Bar	Temp. Range	+5 °C to +35 °C
This system has been designed and manufactured in Accordance with the relevant harmonised European standards			

MARKER LABEL

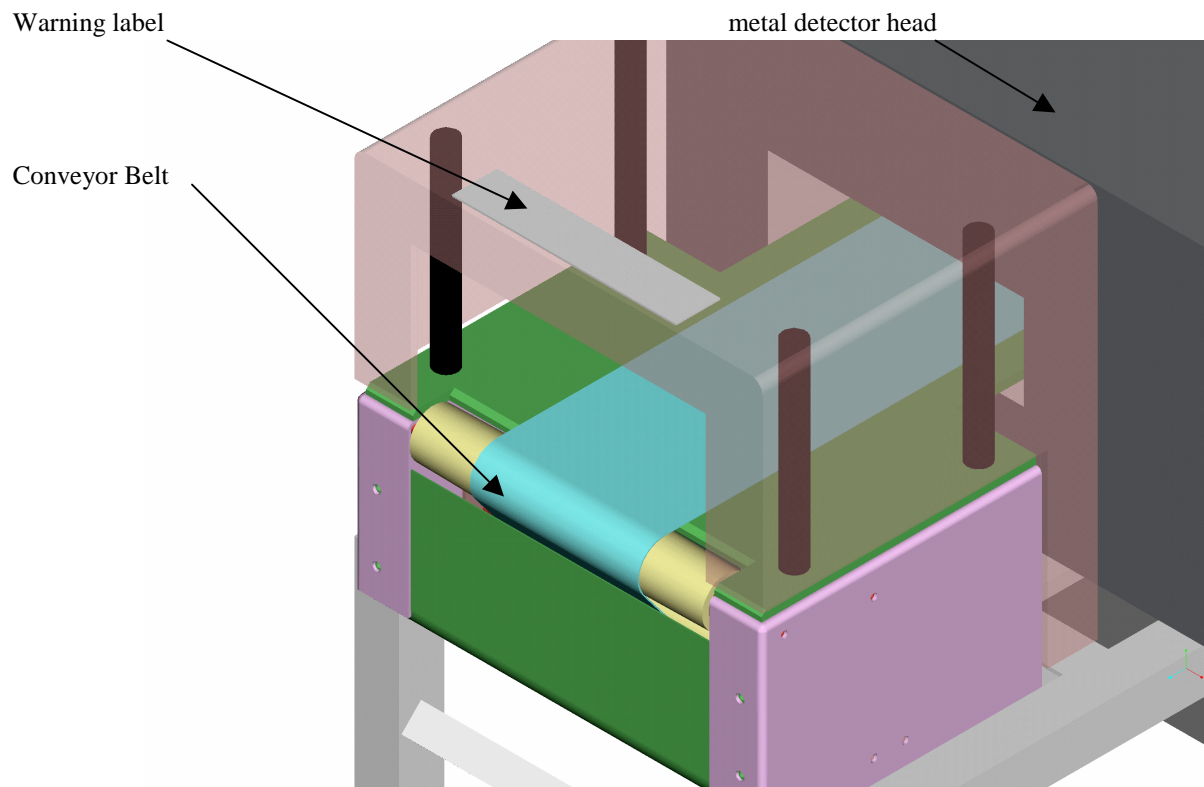
System types:

Metal Detector Followed by: SENTRY, SENTRY KH, NEEDLESEARCH AM or FM, etc

Checkweigher Followed by: CS4000, CS2200, etc

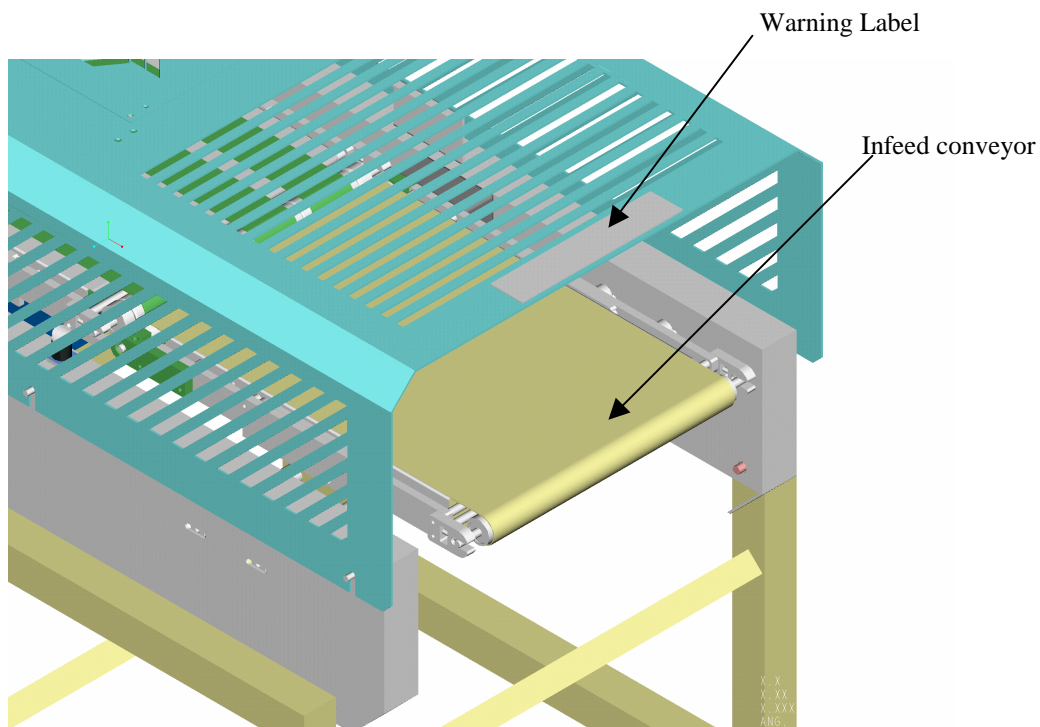
X-Ray Followed by: COMPACT or INSIGHT 300, etc

Metal Detector Infeed:



Checkweigher Infeed:

(Only applies with non Combined systems)



MAINTENANCE:

NOTE: When the conveyors are stopped the reject device is disabled. Therefore prior to undertaking any maintenance or cleaning work, the conveyors MUST be stopped.

Regular cleaning down is the key to maintaining good system operation and optimum accuracy. Therefore minimum cleaning and removal of product spillage should be carried out on a **daily** basis.

On a **weekly** basis a more thorough clean down and inspection of belts, rollers and bearings should be carried out. Any parts showing signs of wear should be replaced.

Conveyors:

Tension and tracking of the Checkweigher conveyor belts should be checked on a regular basis to prevent unnecessary wear or damage of components.

Belt tension: On the Checkweigher conveyors it should be possible to grip the idle roller of the standard PU belt or multiple tape (short) conveyors without stalling the motor. If the belt is over tensioned then tracking it will become very difficult.

Belt tracking: When tracking any conveyor belt always remember that the belt will try to run towards the high point and it only needs a small amount of movement of the tracking roller to cause either a change in the direction or an increase in the speed of movement of the belt in the same direction. Therefore always make a very small adjustment and wait a minute to note any change in belt position. Also adjustment must be a mix of increase tension to one side and release of tension to the other. In that way the average belt tension is maintained and not increased. Over tension will result in a greater difficulty to track the belt.

Belt replacement: This can be easily and quickly achieved by stopping the system, unplugging the motor cable and removing the two thumb screws in the side members. The conveyor can then be rotated up and slid back out of the cradle. Belt tension is released by rotating the idle roller up. Then simply slide off the current belt or tapes and replace with the new ones. Rotate the idle roller back down to restore tension, refit into the conveyor into the cradle, replace the thumbscrews and reconnect the motor cable.

Bearings: The latest Checkweigher conveyors now use self-aligning greaseable bearings for the drive roller. Vegetable grease is used for these bearings. To top up the grease requires a small nipple, which is screwed into the bearing housing and grease, inserted via a grease gun.

Bearings are located in special housings with oil seals either side. The bearing is locked into the housing, as is the roller shaft into the bearing, with bearing lock. The grease is then applied (one stroke or pump only) while the roller is spun to draw the grease into the bearing. If the amount is exceeded it will result in displacement of the oil seal. **It is not recommended that untrained personnel replace bearings.**

CLEANING:

contents

1.0	Introduction.....	page 2
1.1	General.....	page 2
1.2	Detergents.....	page 3
1.3	Cleaning Procedure.....	page 3

Checkweigher and Metal detector – Clean down Procedure

1.0 Introduction

Some Combined systems have been designed to IP65 standard. This means that they will **not** withstand mid to high-pressure hose down, but will however easily cope with low-pressure (as per IP65 standard) wash down. The specification for IP65 with regards water ingress is as follows:

IP65 – Protected against water jets at a flow of 12.5 l/min and a pressure of 30KN/m squared.

Other systems use a metal detector motor that is only to IP54; therefore these systems are permitted to be wipe down cleaned, **only**, with a wet cloth. Check the system specification.

It should also be noted that reaching up from underneath the system guarding could access the metal detector drive motor, pulley and belt. Therefore all conveyors must be stopped before attempting cleaning of the system.

1.1 General

Please take note of the following cautionary measures:

Cleaning of the machine is only permitted when it is OUT of operation (Stopped). The cleaning process will naturally involve the opening of hinged lids or removal of cover guards and therefore the conveyor belt must be stopped.

Before cleaning the system it is essential:

- For employees involved in cleaning to wear adequate protective clothing and hand protection as recommended by the manufacturer of any detergents being used.

1.2 Detergents

Some components of the Transport are manufactured from hard-anodised Aly alloys, which may be attacked by some detergents or disinfectants. This can be detrimental to the operation of the machine and may also shorten the effective life of the system.

Care should be taken in the selection process for detergents and disinfectants used on the machine.

On the basis of pH value, detergents can be classified as follows:

1. Acid detergents.
2. Neutral detergents.
3. Alkaline detergents.

1. Acid detergents

Detergents with a pH value below 4 are potentially damaging to the equipment. They are not suitable for daily cleaning and their use should be restricted to once a month at most, followed by a thorough rinsing process with clean water.

2. Neutral detergents

Use preferably neutral detergents with a pH value of 7.

2. Alkaline detergents

Alkaline detergents with a pH value between 7 and 12 are normally suited to everyday cleaning.

However if any of these detergents are mixed with a Chlorine or strong oxidizing agent (used to break down proteins and some vegetable staining such as carrot) then special care must be taken to use not only the correct concentration but also to thoroughly rinse it off.

Typical concentrations should not exceed 2% and must be rinsed off within the specified time, typically 10 to 15 minutes not more than 20 to 30 minutes and should never be permitted to dry on the surface.

Since most detergents are sprayed on as a gel or foam, it is important to thoroughly rinse it off, this also applies to the disinfectant, which if left to dry on a surface, will increase the effect of the oxidizing agent in the detergent.

1.3 Cleaning Process

For most applications it will be perfectly acceptable to perform a wipe down of the system with a wet or damp cloth. If the application is not messy (i.e boxed product), then a wipe down will be adequate for the system. If however the product is naturally messy then a wash down will be required. A wash down is described as follows:

The wash down process can be broken down into steps:

1. Removal of product and coarse dirt.
2. Application of detergent.
3. Period to allow detergent to become effective.
4. Washing down and final rinsing.

Please consult the manufacturer's instructions for detergent use and pH level, and for any recommended protective clothing.

1. Removal of product and coarse dirt.

The hinged lid on top of the system can first be opened and all product spillage and coarse dirt removed from on and around the transport conveyors, especially the weigh conveyor. Low air pressure may be used for the removal of loose dirt or product from on and under the transport conveyors.

2. Application of detergent

Apply the detergent either manually or under low pressure. Use brushes where application is manual to aid in the freeing of stubborn dirt, but do not use any abrasive tools, which may damage belts or rollers. The Checkweigher wide belt or multiple tape conveyors are designed for quick and easy release and removal. This will allow for more thorough cleaning (or maintenance) of each.

3. Allowing time for effectiveness

The time required for the detergent to become effective and the concentration will depend on the detergent in use. Always follow the manufacturers instructions and recommendations.

Once the time has elapsed, final wash down must commence. If activated detergent is left on for longer than the recommended time, the concentration will increase as the water evaporates and may cause discolouration of the stainless steels surfaces. With some activated detergents this effect is greater, the better the quality of the stainless steel. The rougher the surface the greater may be the effect of the discolouration because the detergent will stay on that surface for longer. The rough surface can be caused by product particles adhering to it, or even sprayed on disinfectant that is not rinsed off and allowed to dry.

4. Final wash down/rinse

Final rinse is very important to prevent the discolouration or damage to metal surfaces.

Although there is a temptation in wash down environments to use high-pressure water jets, it must again be stressed that only low pressure is allowed.

This completes the clean down procedure.